TATTOOING, PERMANENT MAKEUP AND PIERCING IN AMSTERDAM; GUIDELINES, LEGISLATION AND MONITORING

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Tattooing, body piercing and permanent makeup are increasing in popularity. Here, we describe the procedures involved in these practices, their risks, the content of guidelines developed by the Municipal Health Service in Amsterdam (the Netherlands) to reduce infection risks, the legislation in the city of Amsterdam, and results of monitoring in tattoo and piercing studios.

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Introduction

In 1982, an American physician notified the Municipal Health Service (MHS) in Amsterdam that eight American soldiers had contracted hepatitis B during their stay in Amsterdam. All these soldiers had visited the same tattoo studio. A public health nurse from the MHS department of infectious diseases made a site visit, where he noticed that the tattooist used extremely unhygienic procedures. He had a bucket filled with bloody water and a sponge, which were used to 'clean' the skin where the tattoo was to be applied. He used the same needles for all clients, without any cleaning in between. To test whether the needles were still sharp, he touched them on the back of his hand before he started tattooing clients [1].

In the same year, a survey carried out among all tattoo studios in Amsterdam indicated that hygienic conditions were universally bad. This finding, together with the hepatitis B outbreak , supplied the impetus to urgently set up local regulations for the tattoo studios, working with one of the tattooists. This gave us the possibility of enforcement. The first guidelines consisted of ten 'golden rules' for infection prevention in tattoo studios, but more elaborate guidelines were established in 1987. In 1990 the guidelines were expanded to include piercing and permanent makeup studios [2,3]. Based on these regulations a nationwide law is now being prepared for skin procedures performed by non-medical persons (expected in January 2006). Here, we describe the procedures involved in tattooing and piercing, their risks, the content of our guidelines, the developed legislation and the results of monitoring in tattoo and piercing studios. We realise that other cities and countries have set up regulations - for example, after a large outbreak of hepatitis B, United Kingdom brought in legislation for tattoo studios (and other piercing establishments) as early as 1982 [4,5] - but by publishing ours in this journal we hope to promote discussion and further implementation.

Tattooing and Piercing

The English word 'tattoo' originates from the Tahitian word 'tatu', which means 'to mark'. In tattooing, ink is applied below the surface of the skin with a needle (often electrically driven). Traditional tattoos, which are purely decorative, may be applied to all parts of the body, but a tattoo is usually not applied to parts of the body that are not usually covered by clothing, such as the face or hands. Tattooists generally work without medical supervision, and techniques are often passed from one tattooist to another.

Tattoos for cosmetic, rather than decorative purposes, were first reported in 1984 [6]. Categorised as 'permanent makeup' they include lip outlines, eyeliner and eyebrows, and camouflage for scars and other skin imperfections. Although cosmetic tattoos have different purpose and are applied in different settings from traditional tattoos, the techniques used are the same.

Piercing involves making holes in the body with a needle so that rings or bars can be inserted. Piercing can be applied to many parts of the body, including ears, nose, lips, nipples and genitals. Piercing is not limited to the skin, and many include cartilage.

Infection risks and other complications

The use of unsterilised needles, needle bars and tubes, forceps, jewellery and contaminated pigments can result in bloodborne infections, such as hepatitis B , hepatitis C and HIV infection [7-11]. These infections may be asymptomatic in the early phases and are therefore rarely noted.

As healing time may vary from one week (tattoo) to 9 months (navel piercing), there is a risk for infection after the initial application of a tattoo or piercing. The most common causal agents of these later infections are Staphylococcus aureus, group A streptococcus and Pseudomonas spp [9,11]. Typical symptoms of a local bacterial infection are redness, swelling, warmth and pain. Such infections may cause chronic infections.

Other complications include the formation of cysts and keloid scars. Local infection or bleeding of piercing cases is reported in 10%-30% [12]. Allergic reaction to nickel is another common complication [13]. Sometimes piercing may result in irreversible tissue damage. Piercing of the tongue may result in extreme swelling and/or bleeding. It may also cause dental problems, including chipping, cracking and breaking of teeth, as well as abrasion of teeth. Navel piercing is often complicated by bacterial infections [14], and urinary tract infections have been reported after genital piercings [15]. Other problems with genital piercing, in both men and women, are ruptures of the skin and bleeding during or after sexual intercourse.

Less common complications are allergic reactions to inks, pigments, or to the gloves used by the tattooist or piercer [16]. A study conducted by the MHS department of infectious diseases, in collaboration with the Inspectorate for Health Protection has shown that inks and pigments are often not sterile. Also, these substances often contain heavy metals such as lead, cadmium, cobalt, nickel and zinc. One in five inks contained azopigment, from which carcinogenic aromatic amines can be formed [6].

Our experience is that knowledge about complications is insufficient among both tattooists and piercers and their clients. The industry is largely unregulated and serves uninformed clients who have difficulty knowing whether the tattooists or piercer is using proper procedures and equipment. However, most professional tattooists and piercers wish to promote good practice (the cleaner their work, the better their results and reputation) and look forward to the development of guidelines and legislation.

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General rules for a well-equipped studio and preparation

The studio must have a treatment room, where one can concentrate and work hygienically, and a separate waiting room. Walls and floors of the treatment room must be of a smooth and easily cleanable material. The chair or table for treating clients must be upholstered with a non-absorbent fabric that can be thoroughly cleaned. The room must be equipped with a basin with a no-touch hot and cold water tap, a disposable paper towel holder, and a soap dispenser. A waste bin with a pedal operated lid must be present.

Information leaflets for studio clients must be available, with information concerning age restrictions for these procedures, possible complications, and instructions for aftercare. In the Netherlands, the age at which persons may decide for themselves to have a tattoo and piercing is 16 years. This age limit is suspended for earlobe piercing but pertains to all other areas, because children younger than 16 are still growing and thus at risk for displacements of tattoos and piercing.

Informed consent forms, with information concerning health (including allergies) must be available and must be signed by the client. In the case of children under 16 years, a parent or guardian must sign. If they have signed but are not present with the client, the tattooist or piercer must verify their consent by telephone. Signed consent forms must be kept by the studio in a locked file for ten years.

Personal hygiene among studio staff is very important, including clean hands and proper clothes. Single use gloves should be used during tattooing or piercing. These gloves do not have to be sterile, and must be disposed of after use. Before starting with tattooing or with piercing, all pertinent materials should be within easy reach. When the skin to be tattooed or pierced is covered with hair, it should be shaved and disinfected.

The use of injectable anaesthetics by the tattooist or the piercer is under no circumstance permitted. The use of analgesic creams is allowed, but only if the client's physician has prescribed the cream. The name of the client must be present on the tube or pot of cream, which can be used only for the client in question. The cream must be allowed 20 minutes to take effect. The skin, after removal of the cream, must be disinfected with alcohol 70%-80% (ethyl alcohol, ethanol, isopropyl alcohol or isopropanol). Ethyl chloride spray may be used, but has superficial and negligible effect and its use is discouraged.

The use of the right equipment and materials and procedures

Only disposable sterile single-use needles are permitted for tattooing and piercing. These needles must always be disposed of after one use. They must not be thrown into a waste bin but collected in a puncture-resistant container (sharps container) for proper disposal.

Tattooing

Complete sets of disposable needles, needle bars and tubes for tattooing, all sterile wrapped, are currently available on the market. If using such sets, an autoclave is not necessary (see end of this section). Ink must be sterile and must not endanger a person's health or safety (ie, not engender the formation of aromatic amines, nor contain any prohibited dyes or preservatives). Only single-use ink cups should be used and they must not be refilled, except for same customer at the same attendance.

Piercing

Piercing requires the use of a sterile disposable infusion needle covered with a plastic canule. Push-through instruments for ears and nostrils are permitted. They must be hygienic, and fitted with entirely disposable, sterile cartridges. Skin may be marked with a toothpick dipped in a gentian violet 70% alcohol solution or in Betadine®. A marker pen, if used, should be used once only.

Jewellery, forceps, scissors and other equipment used in piercing must be sterilised before application.

An ultrasonic cleaner is needed to remove ink and coagulated blood from instruments. Special ultrasonic disinfectants are needed, and after use the instruments must be rinsed with demineralised water. Sterilisation must be performed using an autoclave with preliminary air elimination and drying programme, in order to sterilise the inside of instruments when all air has been evacuated.

Aftercare

After a tattoo is performed, gloves should be removed and discarded.

Disinfectants must not be used routinely after piercing or tattooing. The tattooist should inform the client that some tenderness, swelling, and pain are normal after these procedures and that, if infection does occur, only 70% alcohol should be used and early medical advice should be sought.

The materials used to make a piercing or a tattoo must be immediately and properly discarded (needles in a sharps container, other disposable materials in the waste bin, and re-usable instruments in special cleaning fluid).

Clients must be given verbal and standardised written instructions regarding aftercare of the tattooed area or piercing. These must include the instruction to contact their general practitioner if any complications arise such as redness, swelling, pus or other fluid secretions, jewellery migration or rejection.

Needlestick accident protocol

Vaccination of tattooist and piercers against hepatitis B is recommended. The MHS protocol for response to needle-stick accidents or other 'blood-blood' contacts must be present in the studio. According to this protocol, in case of such an accident, the MHS department of infectious diseases must be contacted immediately, where there is a physician on call 24 hours a day. The protocol emphasises that although one may be protected against HBV by vaccination, the risk of infection with HCV and HIV and other (unknown) bloodborne infections remains.

Monitoring and law enforcement

The City of Amsterdam Health Regulations define the Municipal Health Services' duty to monitor compliance with its hygiene guidelines [17]. These regulations have been in effect since November 1987. The authorised health official must at all times be allowed access to any tattoo and piercing studios for inspection of the premises, instruments and materials or for observation of a tattoo or piercing to gain insight into the method of operation. The tattoo and/or piercing studios are visited without any prior notification.

According to the City of Amsterdam Health Regulations [17], the following sanctions may be applied if a tattoo or piercing studio does not meet the hygiene guidelines:

- A verbal warning will be issued after observing a condition qualified as unacceptable.
- In case of a condition that constitutes a serious threat to the health of the clients visiting the tattoo studio, a follow-up check will be carried out after the verbal warning.
- If the situation has not been rectified, the studio will be closed for the period of time necessary to implement hygienically acceptable operations.
- The closure will be rescinded once the business operator has provided sufficient guarantees (as judged by the Amsterdam Municipal Health Service executive) that the business will comply. The term of closure depends in principle on the time taken to implement the necessary improvements and will thus vary from case to case.
- A second closure will be cause for permanent closure.

In September 2003 the Dutch government legislated against the use of harmful tattoo inks. Strict regulations compel manufacturers to comply with quality requirements. The Inspectorate for Health Protection and Veterinary Public Health will therefore collect ink samples at both the factories and the studios for tattoo and permanent make up.

Results of monitoring tatoo- and piercing studios

In Amsterdam, inspection of the studios has taken place since the regulations were set up, but these were unfortunately not standardised until 2002. For each item included in the checklist the studio could score between zero (to be changed immediately) and three points (good). The maximum score is the number of items times 3 and this total number is equivalent to 100%.

In 2002, there were 15 studios in Amsterdam, all of which were inspected: 9 tattoo and piercing studios and 6 tattoo studios. The mean score was 89.5% (range 63.9% - 97.4%). Seven studios scored less than 90%. In 2004 Amsterdam had 22 tattoo and piercing studios, all of which were inspected: 10 tattoo- and piercing studios, 8 tattoo studios and 4 piercing studios. The mean score was 96.6% (range 88% - 100%). Six studios scored less than 90% and 6 scored 100%.

The main finding of the inspections over the years [18] is that written guidelines alone are not sufficient to improve safety. Regular inspection visits, with verbal instruction, are needed. It appears to be difficult for non-medical persons to understand what it means to 'work aseptic'. For example they open drawers with disinfected gloves, put sterile jewellery on an unsterile table or smoke while tattooing. Also, they tend to mix up detergents and disinfectants: a disinfectant for the skin was used for cleaning the floor. In aftercare instructions composed by the tattooist or piercer, we found the instruction to take 5 showers a day during the healing period of a nipple piercing. On the other hand, true risks were not always mentioned to the potential client, for example, that healing for a nipple piercing may take 6-9 months. In general, there were problems with the opening and dating of sterilisation bags. And last but not least: the informed consent form is sometimes used as a safeguard more for the tattooist/piercer than for the client.

Discussion

In 1987 the MHS published the first version of its guidelines for tattooing, followed in 1990 by guidelines for piercing. Since the relevant techniques and materials change very fast, these guidelines are updated very regularly. The number of studios in Amsterdam has increased over the years. As of 2004, there were 39 studios in Amsterdam, including 17 permanent makeup salons.

According to Dutch infectious disease control law, a patient with acute or chronic hepatitis B must be reported to the MHS department of infectious diseases, so that source and contact tracing can be carried out. This department has not received any notifications of hepatitis B infections due to tattooing or piercing during the past 10 years. We realise, however, that hepatitis B virus infections may be asymptomatic and therefore not diagnosed, or not always reported when diagnosed.

Recently, two cases of acute hepatitis B were reported to the MHS. In both the most probable source was the same nail studio in Amsterdam. A site visit to this studio showed clear risks for infections, and we advocate that nail studios must also be informed about hygiene and the prevention of infections.

So far, enforcement for tattoo, permanent makeup and piercing studios affects only Amsterdam. However, a nationwide law, based on the MHS guidelines [2,3], is now being prepared for skin procedures performed by non-medical persons (expected in June 2006). Curricula have been developed for hygienists working at Municipal Health Services who will do the inspections and training has started in October 2005

Recently, discussions also have started within the EU for a pan-European legislation, which will be modelled on existing (national) guidelines, including ours [19]. We look forward to the standardisation of guidelines throughout the EU, including guidelines for age, use of anaesthetic, record keeping, ethical standards (eg, not tattooing or body piercing anyone who is intoxicated or under influence of drugs), and licensing after approved training. The exchange between the member states of the name of tattoo and piercing studios that may be possible sources for bloodborne infections should also be encouraged.

In conclusion, public health professionals have to stay alert for new fashions that may include infection risks. In order to detect new sources of infections, a close collaboration is needed between departments of infectious diseases and departments of hygiene and prevention. Standardising guidelines throughout the EU and cross-border notification are recommended.

Addendum: In the national regulations, on which the nation wide law (expected in June 2006) is based, it is advised not to set a tattoo in a person less than 16 years old and not to pierce somebody less than 12 years old. Each person younger than 18 years old has to be accompanied by a parent or guardian who has to give written consent.

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